THIO-MODIFIED APTAMER SYNTHETIC METHODS AND COMPOSITIONS

ABSTRACT

The present invention provides a method for concurrent achiral nucleotide modification and amplification using PCR. Provided by this method are NF-kB specific thioaptamers of novel sequence. This invention further provides methods of post-selection aptamer modification wherein one or more selected nucleotides of aptamers of known sequence are substituted with modified achiral nucleotides, particularly achiral thiophosphate nucleotides, wherein the substitution results in increased nuclease resistance while retaining binding efficiency and selectivity. Thiosubstitution of post-selection aptamers with specificity for the nuclear factor, NF-κB, produced in accordance with this method have increased binding affinity and specificity in addition to nuclease resistance. Also provided are methods for fractionating oligonucleotides depending on their degree of thiosubstitution by anion exchange chromatography.